

## AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing Of Claims:

- 1 (Original) An optical gas sensor for determining a gas in a gas mixture, comprising:
  - a radiation source for emitting a radiation;
  - a substrate; and
  - a sensitive layer positioned on the substrate, wherein:
    - the sensitive layer is porous, and
    - the sensitive layer contains particles that are optically transparent to the radiation emitted from the radiation source and that lengthen an optical path of the radiation.
2. (Currently Amended) An optical gas sensor for determining a gas in a gas mixture, comprising:
  - a radiation source for emitting a radiation;
  - a substrate; and
  - a sensitive layer positioned on the substrate, wherein:
    - the sensitive layer is porous,
    - the sensitive layer contains particles that are optically transparent to the radiation emitted from the radiation source and that lengthen an optical path of the radiation, and

[[The optical gas sensor according to claim 1, wherein:]]

the optical gas sensor is for determining a gas component of air.
3. (Currently Amended) An optical gas sensor for determining a gas in a gas mixture, comprising:
  - a radiation source for emitting a radiation;
  - a substrate; and

a sensitive layer positioned on the substrate, wherein:

the sensitive layer is porous,

the sensitive layer contains particles that are optically transparent to the radiation emitted from the radiation source and that lengthen an optical path of the radiation, and [[The optical gas sensor according to claim 1, wherein:]]

the particles include one of [[a glass,] a quartz [,]] and a PMMA.

4. (Original) The optical gas sensor according to claim 1, wherein:

each of the particles has a diameter of 3 to 20  $\mu\text{m}$ .

5. (Currently Amended) An optical gas sensor for determining a gas in a gas mixture, comprising:

a radiation source for emitting a radiation;

a substrate; and

a sensitive layer positioned on the substrate, wherein:

the sensitive layer is porous,

the sensitive layer contains particles that are optically transparent to the radiation emitted from the radiation source and that lengthen an optical path of the radiation, and [[The optical gas sensor according to claim 1, wherein:]]

the particles are hollow.

6. (Original) The optical gas sensor according to claim 1, wherein:

each of the particles is at least partially coated on a surface thereof with a material that is sensitive to the gas.

7. (Original) The optical gas sensor according to claim 6, wherein:

the material that is sensitive to the gas includes tetraoctylammonium hydroxide.

8. (Original) The optical gas sensor according to claim 6,

the material that is sensitive to the gas includes polydimethylsiloxane.

9. (Original) The optical gas sensor according to claim 6,  
the material that is sensitive to the gas is free of a plasticizer.
10. (Original) The optical gas sensor according to claim 6, wherein:  
the sensitive layer includes gaps between the particles, and  
the sensitive layer includes up to 25 volume% of the material that is  
sensitive to the gas.
11. (Original) The optical gas sensor according to claim 1, wherein:  
the sensitive layer has a layer thickness of 20 to 100  $\mu\text{m}$ .
12. (Currently Amended) An optical gas sensor for determining a gas in a gas  
mixture, comprising:  
a radiation source for emitting a radiation;  
a substrate; and  
a sensitive layer positioned on the substrate, wherein:  
the sensitive layer is porous,  
the sensitive layer contains particles that are optically transparent to the  
radiation emitted from the radiation source and that lengthen an optical path of  
the radiation, and [[The optical gas sensor according to claim 1, wherein:]]  
the substrate includes a detector.
13. (Original) A method of using a sensor including a radiation source for  
emitting a radiation, a substrate, and a sensitive layer positioned on the substrate, the sensitive  
layer being porous, the sensitive layer containing particles that are optically transparent to the  
radiation emitted from the radiation source and that lengthen an optical path of the radiation, the  
method comprising the step of:  
determining a presence of at least one of  $\text{CO}_2$ ,  $\text{NO}_x$ ,  $\text{SO}_2$ ,  $\text{SO}_3$ ,  $\text{NH}_3$ ,  $\text{CO}$ ,  $\text{HCN}$ ,  
and a halogen hydrogen compound.
14. (New) The optical gas sensor according to claim 1, wherein:  
the particles of the sensitive layer are water-insoluble.